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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,675	01/07/2004	Alexander S. Kozlov	H0005756-1060	1132

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EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/753,675

Applicant(s)

KOZLOV ET AL.

Examiner

Harry D. Wilkins, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 26 and 31-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/7/04, 3/7/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I (claims 1-25 and 27-30) in the reply filed on 5 October 2006 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 15, 19 and 22-25 rejected under 35 U.S.C. 102(b) as being anticipated by Alperine et al (US 6,183,888).

Alperine et al anticipate the invention as claimed. Alperine et al teach (see abstract, figure 1 and cols. 5-7) a method for preparing a coated component including <1> providing a substrate (10), <2> electroplating a metal layer (12) on a surface of the substrate, wherein the electroplated metal layer comprised platinum metal and particles (11) of a supplementary constituent entrapped within the platinum metal, wherein the supplementary constituent included Cr, Al, Y and one or more of Ni, Co and Fe, <3> depositing aluminum onto the electroplated metal layer and <4> forming a platinum aluminide coating on the substrate, wherein the platinum aluminide coating included the supplementary constituent.

Regarding claims 19 and 22-23, Alperine et al teach (see col. 7) step 3 of heating after the electroplating step and before the aluminizing step. The heating occurs at

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temperatures of 750-1250°C and is sufficient to cause interdiffusion of the coating with the substrate.

Regarding claim 24, the substrate of Alperine et al was a superalloy and the aluminizing step was at a sufficient enough temperature to cause formation of a platinum-aluminide coating.

Regarding claim 25, the aluminization occurred at high temperatures, such as 1100°C (see Example 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-12, 16-18, 27 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine et al (US 6,183,888) in view of Honey et al (US 4,810,334).

Alperine et al teach (see abstract, figure 1 and cols. 5-7) a method of forming a coating on a substrate include the steps of (1) depositing particles of a material

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containing chromium (e.g.-MCrAlY) onto a substrate and (2) electroplating platinum, with an addition of a supplemental metal, e.g.-Rh or Ni, onto the substrate to fix the MCrAlY particles onto the surface of the substrate.

Thus, the difference between the disclosure of Alperine et al and the presently claimed invention is that Alperine et al teach depositing the particles as a separate step from the electroplating step.

However, it has been held previously, see *In re Tatincloux* (108 USPQ 125 (1955)) and *In re Freed* (165 USPQ 570 (1970)), that in certain instances it would be obvious to one of ordinary skill in the art to perform two steps, which in the prior art were performed in sequence, in a simultaneous manner. However, as per *In re Freed* an evaluation of facts is necessary.

In support of the conclusion of obviousness, the Examiner cites Honey et al, which teaches a step of electroplating, wherein MCrAlY particles are co-deposited during an electroplating step.

As such, the prior art provides a reasonable expectation of successfully performing the platinum electroplating step of Alperine et al simultaneously with the deposition of the MCrAlY particles.

Regarding claim 2, the particles of Alperine et al and Honey et al contained Al, Cr and Y as well as one or more of Ni, Co and Fe.

Regarding claim 3, the particles of Alperine et al and Honey et al contained chromium.

Regarding claim 4, since chromium spontaneously reacts with air to form oxides, the particles of Alperine et al and Honey et al are considered to inherently include at least some chromium oxide. The particles further contained reactive elements Al and Y.

Regarding claim 5, the particles of Alperine et al and Honey et al contained an alloy of chromium with Al and Y and one or more of Ni, Co and Fe.

Regarding claim 6, Alperine et al teach (see col. 6, lines 9-10) using particles of 4-15 microns in size.

Regarding claim 7, Alperine et al teach (see col. 5) that the particles comprised powder of chromium, aluminum, yttrium and one or more of Ni, Co and Fe.

Regarding claim 8, Alperine et al teach (see col. 7, lines 46-56) that after forming the Pt-MCrAlY coating, it may be subjected to a conventional aluminizing process. Additionally, there is (see col. 7, lines 18-45) a heating step to promote interdiffusion of the deposited layer with the substrate and that such interdiffusion also occurs during the aluminizing process.

Regarding claim 9, Alperine et al teach (see col. 7, lines 18-45) a heating step to promote interdiffusion of the deposited layer with the substrate.

Regarding claim 10, Alperine et al, as supported by Honey et al, teach electroplating platinum metal onto a substrate via an electrolyte and concurrently performing electrophoretic deposition of particles from the electrolyte, wherein the particles were made of MCrAlY, where M is one or more of Ni, Co and Fe.

Regarding claim 11, Honey et al teach that the concurrent deposition process provides the particles entrapped throughout the electroplated metal layer.

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Regarding claim 12, the particles included chromium.

Regarding claim 16, Alperine et al, as supported by Honey et al, suggest co-deposition of the platinum and the particles.

Regarding claim 17, the particles would have been maintained in suspension as suggested for the electrophoretic deposition of particles (see col. 6 of Alperine et al).

Regarding claim 18, it would have been within the ability of one of ordinary skill in the art to have selected an optimum concentration of particles within the electrolyte in order to achieve the desired ratio of platinum to particles in the electroplated layer.

Regarding claim 27, as above Alperine et al as supported by Honey et al teach the steps as claimed. It is noted that steps (e) and (f) occur simultaneously in the process of Alperine et al.

Regarding claim 29, the particles of Alperine et al and Honey et al included Cr, Al and Y.

Regarding claim 30, although not taught by Honey et al, Alperine et al teach performing agitation during an electrophoretic process of particle deposition to avoid conglomeration of the particles.

7. Claims 13, 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine et al (US 6,183,888) in view of Honey et al (US 4,810,334) as applied to claim 10 above, and further in view of Strangman et al (US 6,306,277).

Alperine et al is silent with respect to the details of the platinum electroplating process, assuming that one of ordinary skill in the art would have been capable of selecting an appropriate electrolyte and operating parameters.

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Strangman et al teach (see abstract and claims) a process of electroplating platinum utilizing an electrolyte comprising dinitrodiamine platinum at voltages of 0.2-6.0 V. The process was able to reduce contaminants in the electroplated platinum layer.

Therefore, it would have been obvious to one of ordinary skill in the art to have utilized the electrolyte and operating voltage as taught by Strangman et al for the platinum electroplating step of Alperine et al because Strangman et al teach that the process reduced impurities in the electroplated platinum layer.

8. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine et al (US 6,183,888) in view of Adams, Jr (US 154,435).

Alperine et al teach a post-electroplating heat treatment, but that heat treatment causes interdiffusion of the platinum with the substrate and occurs at temperatures outside the range of claim 21.

Adams, Jr teach the concept of applying a moderate heat treatment to an article coated by electroplating to reduce the occurrence of "stripping" of the electroplated layer.

Therefore, it would have been obvious to one of ordinary skill in the art to have applied a heat treatment as taught by Adams, Jr to the process of Alperine et al to improve the bonding between the substrate and the electroplated platinum to reduce the occurrence of "stripping".


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Harry D Wilkins, III
Primary Examiner
Art Unit 1742

hdw